

Magnetism and Matter

- Assertion (A):** Magnetic field arises due to charge in motion but a system may have magnetic moment even though its net charge is zero.

Reason (R): Uncharged magnetic material may have dipole moment.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false
- Assertion (A):** Permeability of a ferromagnetic material is independent of the applied magnetic field.

Reason (R): Permeability of ferromagnetic substances is lower for higher value of applied field.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false
- Assertion (A):** A system displaying a hysteresis loop, such as a ferromagnet is a device for storing memory.

Reason (R): A ferromagnetic substance remains magnetised even after external field is removed.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false
- Assertion (A):** The product of magnetic susceptibility and absolute temperature of a paramagnetic substance is a constant.

Reason (R): Paramagnetic substances obey Curie's law.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false
- Assertion (A):** The permanent magnetic moment of the atoms of a material is zero. The material must be diamagnetic

Reason (R): Hard magnetic materials have high retentivity, high coercivity and large hysteresis- loss and are suitable for permanent magnetism.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false
- Assertion (A):** The poles of magnet cannot be separated by breaking into two pieces.

Reason (R): The magnetic moment will be reduced to half when a magnet is broken into two equal pieces.

(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false



7. **Assertion (A):** A paramagnetic sample shows greater degree of magnetisation when cooled.

Reason (R): Magnetisation of paramagnetic material is inversely proportional to temperature.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

8. **Assertion (A):** Ferromagnetic materials of high retentivity are used to form permanent magnet.

Reason (R): Ferromagnetic materials have positive intensity of magnetisation.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

9. **Assertion (A):** For a perfectly diamagnetic substance, permeability is always 1.

Reason (R): Small pieces of any magnetic substance are attracted by a strong magnetic field.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

10. **Assertion (A):** The properties of paramagnetic and ferromagnetic substances are not affected by heating.

Reason (R): As temperature changes, the alignment of molecular magnets does not change.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

11. **Assertion (A):** Soft iron is used as transformer core.

Reason (R): Soft iron has narrow hysteresis loop.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

12. **Assertion (A):** All magnetic materials lose their magnetic properties when strongly heated.

Reason (R): Most of the substances show diamagnetism.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12
Ans.	1	4	1	1	2	2	1	2	4	4	1	2